General Information

Site Name and Location:	Arlington Cleaners, Arlington, Texas, United States
Description: Historical activity that resulted in contamination.	Based on the historical data provided, the subject property was undeveloped or used as farmland until 1979, when the current shopping center was constructed. The primary identified source area is a former drycleaner facility which operated on-site from 1982-1992.

Contaminants:

Contaminants: Contaminants present and the highest amount detected in both soil and groundwater (please avoid giving ranges).	**Contaminant**	**Conc in GW**	**Conc. in Soil**
	cis-1,2-Dichloroethene	7,300 : g/L	
	Tetrachloroethene (PCE)	4,500 : g/L	
	Trichloroethene (TCE)	7,300 : g/L	
	Vinyl Chloride	870 : g/L	
Other Contaminants Present: Indicates what other contaminants were found on-site			
Deepest Significant Groundwater Contamination:	7 ft		

Plume Size: approximately 3,000 ft^2 in area

Site Hydrology:

Depth to Groundwater: 7 ft

Lithology and Subsurface Geology: Predominately medium to dark gray shale

Conductivity:

Gradient:

Media:

Media: Groundwater

Soil

Remediation Scenario:

Cleanup Goals: Levels were adjusted by a factor of 100 because groundwater was deemed unusable: Cleanup goals for Groundwater: PCE - 500 : g/L TCE - 500 : g/L cis-1,2-DCE - 7,000 : g/L VC - 200 : g/L Cleanup goals for soil (soil leaching to groundwater pathway): PCE - 7 mg/kg TCE - 0.5 mg/kg cis-1,2-DCE - 0.5 mg/kg VC - 0.2 mg/kg

Technologies:

Technologies Used: In Situ:

Hydrogen Release Compound (HRC)®

Ex Situ:

Removal

Other technologies used:

Why the technology was selected: Removal of soil was selected due to small volume of soil above cleanup levels (40 ft^3). HRC® was selected to augment the natural degradation of the solvent plume, and achieve cleanup goals quicker.

Date implemented: June 1998 for soil removal May 2000 for HRC® injection

Final remediation design: In June 1998, approximately 40 ft3 of impacted soils in the interior of the dry cleaner facility were excavated. In May 2000, approximately 7,000 lbs of hydrogen releasing compound (HRC®) was injected into 45 borings within an approximately 3,000 ft^2 area located in the vicinity of the drycleaner source area. During the January and April 2002 sampling events, PCE exceeding the cleanup goal was detected in one monitoring well. In accordance to the approved work plan, a contingency HRC® injection event was conducted in August 2002. The results of the six subsequent groundwater monitoring events indicate that the dissolved contaminants remain below the cleanup goals.The UVB technology is an in-situ treatment for groundwater developed in Germany. It uses a combination of physical and biological processes. It creates a circulation cell that transports the dissolved mobile phase and residual mobile phase hydrocarbons to a central well casing for treatment. The treatment is primarily air stripping, secondarily bioremediation, for light and middle range fraction hydrocarbons. Two UVB wells were installed. The groundwater enters the remediation well through the lower screen section. After the GW has been oxygenated and stripped of VOCs, it is released through the upper screen. In the surrounding area of the remediation well, the induced flow will be from top of the aquifer to the bottom of the aquifer. 4 m3/h of water are being pumped into the UVB-200-1 reactor and 2 m3/h are being pumped back into the two UVB-200-2 stripping reactors. Thus, the stripping efficiency is 90 to 99% effective.

Results and Next Steps:

Results to date: Confirmatory soil samples were collected indicating that no soil contained chlorinated solvents exceeding cleanup goals.

The results of the six groundwater monitoring events after the August 2002 injection event indicate that the dissolved contaminants remain below the cleanup goals.

Next Steps: Certificate of Completion was issued for this site.

Costs:

Cost for Assessment: No cost data available

Cost to Design and Implement:

Cost for Operation and Maintenance:

Total Costs for Cleanup:

Lessons Learned:

Lessons Learned: 1. Contaminant rebound can occur with HRC® injection. Monitoring should continue for at least one year after injection.

Contacts:

Principal Point of Contact: Dan Switek, Texas Commission on Environmental Quality
12100 Park 35 Circle, MC-136
Austin, TX 78753
512-239-4132

Site Specific References:

Site Specific References:

Images:

Images of Site:

Profile last updated on Dec 08, 2004

General Information

Site Name and Location:	Former Colony Cleaners, Richardson, Texas, United States
Description: Historical activity that resulted in contamination.	Drycleaning operations at the site were initiated between 1975 and 1980 and continued until 1999. Contamination was discovered in 1999. The contaminant source area is located at the former location of the drycleaning machine.

Contaminants:

Contaminants: Contaminants present and the highest amount detected in both soil and groundwater (please avoid giving ranges).	**Contaminant**	**Conc in GW**	**Conc. in Soil**
	cis-1,2-Dichloroethene	3,850 : g/l	400 : g/kg
	dichlorobenzenes	6 : g/l	
	ethylbenzene		40 : g/kg
	Tetrachloroethene (PCE)	6,30g/l	7,400 : g/kg
	Trichloroethene (TCE)	2,600 : g/l	840 : g/kg
	Vinyl Chloride	8 : g/l	

Other Contaminants Present: Indicates what other contaminants were found on-site	Groundwater: 1,2-dichlorobenzene - 6 : g/l
Deepest Significant Groundwater Contamination:	

Plume Size:

Site Hydrology:

Depth to Groundwater: 13 - 15 ft bgs

Lithology and Subsurface Geology: Clay, surface-15 ft bgs; Limestone (Austin Chalk), 15-depth of investigation

Conductivity: 0.0361 ft/day

Gradient: 0.0014 - 0.006 ft/ft

Media:

Media: Groundwater

Soil

Remediation Scenario:

Cleanup Goals:

Technologies:

Technologies Used: In Situ:

Hydrogen Release Compound (HRC) ®

Other technologies used:

Why the technology was selected: The presence of PCE degradation products indicated that reductive dechlorination has occurred. HRC was utilized to stimulate biodegradation at the site.

Date implemented: A single injection event of HRC occured in October 2000.

Final remediation design: HRC was injected at depths of 6-12 ft bgs via direct push at 5 locations upgradient of the contaminant source area. Four lbs/ft were injected for a total of 50 pounds/injection point (total of 250 pounds).

Results and Next Steps:

Results to date: Contaminant concentrations in groundwater in the contamiant source area have decreased since the October 2000 injection event: Source area monitoring well -- from 630 : g/l PCE (February 2001) to 253 : g/l PCE (April 2003). Downgradient monitoring well -- from 50 : g/l PCE (September 2002) to 24 : g/l PCE (April 2003).

Next Steps: Continued groundwater monitoring was recommended at the site.

Costs:

Cost for Assessment: No cost data available

Cost to Design and Implement:

Cost for Operation and Maintenance:

Total Costs for Cleanup:

Lessons Learned:

Lessons Learned:

Contacts:

Principal Point of Contact: Peter Wehner
Texas Commission on Environmental Quality (TCEQ)
Voluntary Cleanup Program
12100 Park Circle, Bldg. D
Austin, Texas 78753

HKC & Associates, Inc.
2995 LBJ Freeway, Suite 132
Dallas, Texas 75234

Site Specific References:

Site Specific References:

Images:

Images of Site:

Profile last updated on May 24, 2004

General Information

Site Name and Location:	Former Prestonwood Specialty Cleaners, Dallas, Texas, United States
Description: Historical activity that resulted in contamination.	Prestonwood Specialty Cleaners formerly operated in a one-story shopping center. Investigations conducted in 1995 identified this former operation as a contaminant source.

Contaminants:

Contaminants: Contaminants present and the highest amount detected in both soil and groundwater (please avoid giving ranges).	**Contaminant**	**Conc in GW**	**Conc. in Soil**
	1,1,1-Trichloroethane	12.6 : g/l	
	1,1-Dichloroethene	5.75 : g/l	
	cis-1,2-Dichloroethene	1080 : g/l	
	Tetrachloroethene (PCE)	23,500 : g/l	53,000 : g/kg
	trans-1,2-Dichloroethene	55.6 : g/l	
	Trichloroethene (TCE)	42.9 : g/l	

Other Contaminants Present: Indicates what other contaminants were found on-site	
Deepest Significant Groundwater Contamination:	25 ft.
Plume Size:	70ft. x 120 ft.

Site Hydrology:

Depth to Groundwater: 5 ft bgs

Lithology and Subsurface Geology: Fill material, clay lenses, limestone

Conductivity:

Gradient: 0.13 ft./ft.

Media:

Media: Groundwater

Soil

Remediation Scenario:

Cleanup Goals: Groundwater: PCE = 500 : g/l Soil: PCE = 50,000 : g/kg

Technologies:

Technologies Used: In Situ:

Hydrogen Release Compound (HRC) ®

Ex Situ:

Removal

Other technologies used:

Why the technology was selected: Since PCE degradation products were present in groundwater, HRC was proposed to enhance biodegradation by fueling reductive dechlorination in an offsite source area (50 ft x 70 ft) Exacation was recommended to remove contaminated soils - onsite and offsite.

Date implemented: Excavation: 1999 HRC Injection: June 2001

Final remediation design: Approximately 146 cubic yards of contaminated soil were excavated in two areas: beneath the floor slab of the former drycleaning facility (2-3 ft in depth) and at an offsite location in the vicinity of a monitor well. A total of 25 injection points (open-hole) were installed on a 10-ft spacing at an offsite location. A straddle packer was used to isolate the injection zone (limestone). The limestone was fractured by injecting HRC at high pressure in a zone 15-25 ft bgs. Slightly less pressure (40-60 psi) was used to inject HRC at shallower depths (5-15 ft bgs). On average, 136 pounds of HRC was injected per borehole. A total of 3,400 pounds of HRC was injected at the site or an average of 6.7 lb/ft/borehole.

Results and Next Steps:

Results to date: Between June 2001 (injection event) and April 2002 monitoring indicated that groundwater wells located proximate to the injection area had not been significantly influenced by the HRC application.

Nearly two years after treatment, PCE concentrations in one monitoring well located in the injeciton zone have increased from 15,000 : g/l to 23,500 : g/l.

Next Steps: Addtional groundwater monitoring has been recommended at the site.

Costs:

Cost for Assessment: No cost data available

Cost to Design and Implement:

Cost for Operation and Maintenance:

Total Costs for Cleanup:

Lessons Learned:

Lessons Learned: 1. Fracturing at high pressures resulted in unseating of straddle packers at some locations.

Contacts:

Principal Point of Contact:

Joe Bell
Texas Commission on Environmental Quality (TCEQ)
Voluntary Cleanup Program
12100 Park Circle, Bldg. D
Austin, Texas 78753

Contractor:
Dames & Moore
5151 Beltline Road, Suite 700
Dallas, Texas 75240
Phone (972) 980-4961

Site Specific References:

Site Specific References:

Images:

Images of Site:

Profile last updated on May 24, 2004

General Information

Site Name and Location:	Ted's Cleaners, Nashville, Tennessee, United States
Description: Historical activity that resulted in contamination.	Ted's is a 2,950-sq-ft currently operating facility in a retail strip mall. Ted's began operations in 1975. From 1975 to 1985 used PCE wastes, still bottoms, and spent filter cartrifges were disposal in a site dumpster. There are no records of major spills or other significant release.

Contaminants:

Contaminants: Contaminants present and the highest amount detected in both soil and groundwater (please avoid giving ranges).	**Contaminant**	**Conc in GW**	**Conc. in Soil**
	cis-1,2-Dichloroethene	2330 : g/L	0.0410 mg/kg
	Tetrachloroethene (PCE)	22,000 : g/L	0.0640 mg/kg
	trans-1,2-Dichloroethene	21.7 : g/L	
	Trichloroethene (TCE)	820 : g/L	0.0025 mg/kg
	Vinyl Chloride	1.3 : g/L	

Other Contaminants Present: Indicates what other contaminants were found on-site	
Deepest Significant Groundwater Contamination:	22 ft.

Plume Size: 550 ft length ,160 ft width, unknown depth

Site Hydrology:

Depth to Groundwater: 3.2 ft to 10.7 ft BGS

Lithology and Subsurface Geology: Overburden varies from 5.7 ft to 22.5 ft BGS. Bedrock is the ordovician catheys-leipers formation. This is a fine grained thin-to-medium bedded argrillious shaley limestone with shale interbeds. The unit also contains beds of bioclastic phosphatic limestone. The limestone is overlain by alluvium consisting of varying amounts of sand and gravel in a matrix of silt and clay.ial, clay lenses, limestone

Conductivity: vertical conductivity from shelby tubes 2.7 e-4 to 8.4 e-7 cm/sec

Gradient: 0.026 ft./ft.

Media:

Media: Groundwater

Soil

Remediation Scenario:

Cleanup Goals: Remove, reduce source area. No established site specific cleanup goal but require mass reduction of on-site contamination.

Technologies:

Technologies Used: In Situ:

Hydrogen Release Compound (HRC) ®

Other technologies used:

Why the technology was selected: Selection was based on remedial alternative study (feasibility study). Based on risk related to product application, cost, and success at other sites, enhanced in-situ bioremediation using HRC was selected for pilot test.

Date implemented: Sept. 2002, Inject HRC. Removed (by bailing) free product from wells May 2003. Monitoring period 11/02; 1/03; 5/03; 6/04.

Final remediation design: Inject HRC at 9 points surrounding MW-4 and MW-13. Product applied in a grid pattern to address target.

Results and Next Steps:

Results to date: No success to date, more than 20 months after injection. No effect observed in downgradient well approximately 5 ft away.

Next Steps: Authorized additional monitoring in June 2004 for natural attenuation parameters and to conduct polymerase chain reaction test. Now awaiting these results.

Costs:

Cost for Assessment:

Cost to Design and Implement: 7,500 focused remedy selection report.
$35,000 pilot study injection

Cost for Operation and Maintenance:

Total Costs for Cleanup: Total project cost to date including monitoring is > $110,000

Lessons Learned:

Lessons Learned: 1. We are still determining what we could have done differently -- e.g., what additional info or testing could have been collected that would have helped us make a different choice and or a different design.

Contacts:

Principal Point of Contact: Charles Rowan, PhD, PG
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615-741-4976
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Site Specific References:

Site Specific References:

Images:

Images of Site:

Profile last updated on July 16, 2004